SPECIFICATION AMENDMENTS

A 2

[0031] Figs. 15A and 15B shows the exterior of the brush end of a brush tip in accordance with a fifth preferred embodiment of the invention

[0035] In accordance with the preferred embodiment of the invention, a brush tip generally indicated by reference numeral 20 has a first brush head 22 and a second brush head 24. The second brush head 24 encircles the first brush head 22. The first brush head 22 is circular, and the second brush head 24 is elliptical. (Although the second brush head 24 is advantageously elliptical, this is not required and another non-circular shape can be used instead. Furthermore, the second brush head 24 is advantageously continuous, but need not be so. It may be made up of a plurality of segments, and may therefore have one or more gaps.). In further accordance

A3

with the preferred embodiment of the invention, means are provided to accelerate the brush heads 22 and 24 differently, i.e. to move in opposite directions. The preferred embodiment therefore provides coverage that is greater than the coverage provided by the ~~circular~~ brush heads, since the elliptical second brush head 24 swipes over a wider area than the surface areas of the brush heads. Furthermore, because the first and second brush heads 22 and 24 are accelerated differently, their bristles do not twist together in a knot if the user applies excessive pressure to the toothbrush.

[0051] In this way, the first brush head 122 and the second brush head 124 are secured to the housing 114, with the second brush head 124 oscillating ~~rotating~~ upon the flat surface 116 of the

A 4

housing 114 and the first brush head 122 oscillating ~~rotating~~ within the well 144 upon the pedestal 109. The second brush head 124 is constrained to oscillatorily rotate between the housing 114 and the first brush head 122 because the lip 111 prevents the second brush head 124

from sliding upwardly around the first brush head 122. Both the first and second brush heads 122 and 124 oscillatorily rotate about a common axis, which is the axis defined by the axle 123. And, as is explained in detail immediately below, the first and second brush heads 122 and 124 oscillatorily rotate in opposite directions

[0052] The counter-oscillatory-rotation of the first and second brush heads 122 and 124 is accomplished by using an elongated serpentine metal shaft 125 that engages with the first and second brush heads 122 and 124 while rotating. The shaft 125 rotates about a shaft axis 126, and is advantageously secured to the rotor of a DC motor (not shown) in a motorized toothbrush (not shown). The shaft 125 is bent to form two cranks; a first crank 131 and a second crank 133. The first and second cranks 131 and 133 extend outwardly in opposite directions from the shaft axis 126, and the shaft 125 and first and second cranks 131 and 133 all advantageously lie in a single plane that includes the shaft axis 126. Although this is not required, it is advantageous because it permits the shaft 125 to be easily formed into the required shape, as by bending or stamping.

A 4

[0053] The first brush head 122 has a first slot 127, and the distal end of the first crank 131 engages the first slot 127. The second brush head 124 has a second slot 128, and the second crank 133 engages the second slot 128. As used herein, the term "slot" includes any opening that can receive the corresponding crank. For example, the first slot 127 can be a blind bore within the first brush head 122, and the second slot 128 can be any through-extending opening. In the preferred embodiments, the first and second slots 127 and 128 extend down to the bottoms of the first and second brush heads 122 and 124 to facilitate assembly. As can be seen in Figs. 9, 10 and 11, as the shaft 125 is rotated around shaft axis 126, the first crank 131 not only rotates and moves up and down within the first slot 127, but also causes the first brush head 122 to oscillatorily rotate about the axis of the axle 123. The second crank 133 performs a similar

function with respect to the second brush head 124; as the shaft 125 rotates, the second crank 133 not only rotates and moves up and down within the second slot 128, but also causes the second brush head 124 to oscillatorily rotate around the first brush head 122 and about the axis of the axle 123. Because the first crank 131 and the second crank 133 point in opposite directions away from the shaft axis 126, they cause the brush heads 122 and 124 to oscillatorily rotate in opposite directions, i.e. to counter-rotate. As a result, the first and second brush heads 122 and 124 counter-oscillatorily-rotate about a common axis, namely the axis of the axle 123.

[0057] Figs. 15A and 15B shows another preferred embodiment similar to those shown in Figs. 7-14, having a circular first brush head 154 and a second brush head 155 encircling the first brush head 154. The assembly and drive mechanism of this embodiment may be any of the embodiments described above. Similar to the embodiments described above, each brush head 154 and 155 has a plurality of tufts 105 and 106 of bristles 8 mounted thereon respectively. Each tuft 105 and 106 of bristles 8 are shown to have similar sized circular footprints, although tufts 105 and 106 with different size and shape footprints may be used. As shown in Figs. 15A and 15B, tufts 105 extend vertically from the first brush head 154 and tufts 106 extend from the second brush head 155 at an angle away from the first brush head 154. The distal ends of bristles 8 of tuft 105 on the first brush head 154 form a circular pattern and the distal ends of bristles 8 of tuft 106 on the second brush head 155 form an elliptical pattern (as illustrated by arrow A). Distal ends of bristles 8 of tufts 105 and 106 on the first and second brush heads 154 and 155, respectively, may form other patterns such as square, diamond, or other non-circular patterns. Similar to the brush head 24, the second brush head 155 may be continuous, but need not be so. It may be made up of a plurality of segments, and may therefore have one or more gaps.